

APPLICATION FOR LETTERS PATENT
FOR
INTERACTIVE VOICE AND TEXT MESSAGE SYSTEM
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FIELD OF THE INVENTION:

The present invention relates to the field of electronic communication, and more particularly to an electronic communication system between an office-based device and a portable device that enables a user of either device to receive text or voice messaging.

BACKGROUND OF THE INVENTION:

Electronic communications are becoming more popular than ever, due in part to the increased variety and capability of portable electronic devices, e.g. cellular telephones, palm devices (PDA's), pagers, and laptop computers. A laptop computer can access the Internet, providing it has a modem or other telephone line-access device built in or connected to it. A recent advance in portable electronic devices allows access to the Internet through a modified cellular telephone. With such a telephone, textual electronic messages can be received and displayed on the telephone's screen, although only a few lines at a time. Prior to the present invention, a recipient of a message received through an Internet-capable telephone could reply by either of two somewhat deficient methods.

A first method of response was simply to place a conventional telephone call to the originator of the email message. This method has the problem of requiring the recipient of the email message to have, or be given, the telephone number of its originator, which is not always possible. The originator would then have to be able to access the telephone to which the recipient is sending the reply. The originator would also have to remember the original email message at

the time of receiving a voice reply to properly appreciate or utilize the telephone response. Finally, the originator may have to go back to the originating device in order to reply again to the original recipient.

The second method by which the telephone recipient could reply to an email message received on the Internet-capable telephone is to type a text message on the telephone device. The telephone device may have an ultra-miniature keypad which is awkward to use, a handwriting recognition interface which is prone to errors, or an alpha numeric (standard telephone) keypad. The problem with typing on the telephone device is that the keypad has only ten keys, far less than is needed for normal alpha use. The available solution to this typing problem is a system by which each of the keys can activate one of three letters by striking the key multiple times. In other words, the "2" key can be used for the letters A, B, and C by striking it once, twice, or three times, respectively. Not only does this system mean that typing requires up to three times more work than typing with a normal alphabetic keyboard, but the size and close proximity of the keys are such that typing is difficult and error-prone.

Therefore, it is an object of the present invention to provide a system by which a user of a portable electronic device can communicate by audio message to a text message email device.

It is a further object of the present invention to provide such a system wherein a text message includes a reply notice having a message-identifying number.

These and other objects of the present invention will become more apparent from the description to follow.

SUMMARY OF THE INVENTION:

5 The present invention provides a method for enabling a user of a portable electronic device to communicate with a user of an office-based device by voice communication. The program for receiving and relaying the email message determines initially whether the recipient is registered as a user of the system. Registration provides the email gateway address and identification information
10 for the user. Secondly, the gateway program assigns to the email message a message-identifying number and assembles the number and a reply notice to the message. The program then determines whether the message sender is listed in the database, and if not, enters the email address of the sender. The text message, with the reply notice and identifying number is then relayed to the
15 recipient.

 The recipient is presented with the message, the reply notice and the message-identifying number. The recipient is able to contact the gateway database by telephone and is authenticated as a registered user. The recipient is requested for the message-identifying number and prompted to record a voice
20 reply message. The voice message is recorded into the database in MP3 format from which it can be accessed by the original sender of the email and played through the terminal's speaker.

BRIEF DESCRIPTION OF THE DRAWINGS:

Figure 1 is a schematic diagram illustrating the system of the present invention.

Figure 2 is a flowchart showing the operating method steps of the present invention for forwarding an email to a portable electronic device.

Figure 3 is a flowchart showing the operating method steps of the present invention for enabling a voice response to a text email.

DETAILED DESCRIPTION OF THE INVENTION:

In accordance with the objects outlined above, the present invention provides an apparatus and method for enabling the recipient of an email message on a portable electronic device, or client, to respond to such email by voice communication. Referring now to Figure 1, the apparatus of the invention is shown in diagrammatic form. The sender, or originator, of an electronic communication, specifically a text electronic mail message (hereafter referred to as email), typically generates and sends such an email from an office-based terminal 10, such as a personal computer (PC) or a laptop computer. The message is transmitted to an email server 12. Email server 12 relays the email to converting email gateway 14 which interacts with database server 16 and telephony server 20 as described below in regard to the method steps employed. Pursuant to the steps to be described hereinafter, the email is relayed to any one or all of the portable devices of the intended recipient, i.e., cell phone 22, palmtop computer (PDA) 24, and pager 26. The determination of which portable device,

cell phone 22, PDA 24, or pager 26 is made on the basis of the recipient's file data in the system. Contact can be made to any or all of the portable devices, depending on the registration parameters of the recipient.

5 Referring now to the flowchart of Figure 2, the email that is sent from sender's terminal 10 (see Figure 1) to sender's email server 12, and transferred to converting email gateway 14, is seen as being received at email gateway server in flowchart box 102. The receipt of an email in email gateway 14 activates a message-handling program to follow. The program analyzes the
10 email address and parses the name of the intended recipient at step 104. A determination is then made as to whether the intended recipient is a authorized user of the system at decision point 106. If the response to query step 106 is negative, the message is rejected at step 110 and returned to the sender. If the response is affirmative, the message is stored at step 108 and the appropriate
15 forwarding address is determined at step 112. Next, the program assigns to the email message a message-specific indicia, for example a serial number, at step 114 so that when the recipient receives and responds to the message, the reply can be communicated efficiently to the originating sender. The invention recognizes that an alphabetic message identicia is less desirable for the user of a
20 cell phone-type keypad than a numerical identifier, although they serve the same purpose. The reply notice and the message-specific indicia are appended to the email at step 116. The reply notice contains text instructions to the recipient of the email that provides a telephone number for responding and the message-

identifying number. A typical reply notice would state: "To reply by phone, call 1-800-123-4567, enter the message-identifying number 890 when prompted, and record a voice response after you hear the tone."

5 The message-specific indicia and the email are stored in database server 16 (see Figure 1) at step 118. The server address list is checked at step 122 to determine whether the sender's address is listed. If the answer to the query at step 122 is affirmative, the program moves ahead at step 124 and transmits the message to the recipient at step 128. If the answer is negative, the address is
10 added to the list at step 126 and the message is then sent to the recipient at step 128.

 Although the recipient will ordinarily receive the email at a selected portable electronic device 22, 24, 26, the portable client user may respond from
15 any telephone or electronic device. As will be apparent to those skilled in the art, the present invention can be equally be useful when the user of a portable electronic device is the initiator of, rather than the recipient of, an electronic message.

20 Referring now to Figure 3, the portable device user places a telephone call to the sender's email server at flowchart box 202. The email server transfers the call to converting email gateway 14 (Figure 1) which activates "caller ID" service at step 204 to attempt to identify the caller. A determination of whether the caller

ID feature is operating, either because of a possible recipient block or otherwise, is made at query step 206. If caller ID is operating, the system checks its database at query step 208 to determine whether the caller is a registered user of the system. If the caller is a registered user of the system, the caller is prompted to enter the pre-assigned message-identifying number at step 216. If the caller is not a registered user of the system, an error message is played at step 228 and the program is stopped.

If the system has determined at step 206 that caller ID was not working, the caller is prompted to enter a personal identification number (PIN) at step 212, which is authenticated at step 214. If the PIN is valid, the caller is prompted to enter the pre-assigned message-identifying number at step 216. If the PIN is not valid, an error message is played at step 228 and the program is stopped.

The system determines at decision point 224 if the message-identifying serial number is valid. If valid, the caller is prompted at step 226 to record a responsive voice message, which is recorded at step 232. If the message-identifying serial number given is not valid, an error message is played at step 228 and the program is stopped. If the message-identifying serial number is valid, the caller is asked whether the recorded message is acceptable at step 234. If the response is affirmative, the received message is converted into MP-3 format, as is known, and is saved in the system server at step 236. In MP-3 format, the voice message can be sent to an email recipient as an attachment to

an email for replay on the receiving office-based terminal. If the message is not acceptable as determined in step 240, the message may be recorded a second time and the program recycles to step 234 to verify the acceptability.

5 The caller is then asked to whom to send the message at step 242, which may be one or more addressees. If the voice message is a reply to a prior message, either of the standard choices of "Reply" or "Reply To All" may be selected. The recorded and MP-3 converted message is then transmitted to the addressee(s) at step 244, and the program is stopped at step 248.

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While the present invention is described with respect to specific embodiments thereof, it is recognized that various modifications and variations thereof may be made without departing from the scope and spirit of the invention, which is more clearly understood by reference to the claims appended hereto.

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The invention particularly recognizes that electronic communication initiated by a user of a portable device and responded to by a user of an office-based terminal is also within the scope of the present invention.